

**Bull Trout Final Critical Habitat Justification: Rationale for Why Habitat is
Essential, and Documentation of Occupancy**

**Chapter 3. Coastal Recovery Unit—Lower Columbia River
Basins Critical Habitat Unit**

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Chapter 3. Lower Columbia River Basins Critical Habitat Unit

The Lower Columbia River Basins CHU is essential for maintaining bull trout distribution within this unique geographic region of the Coastal RU. It is also essential for maintaining broad distribution of the migratory life history form within the lower Columbia River basin that may still have the potential to re-express amphidromy. See Appendix 1 for more detailed information.

The Lower Columbia River Basins CHU consists of portions of the Lewis, White Salmon, and Klickitat Rivers and associated tributaries in southwestern and south-central Washington. The CHU extends across Clark, Cowlitz, Klickitat, Skamania, and Yakima Counties. Approximately 360.9 km (224.3 mi) of stream and 4,856.1 ha (11,999.7 ac) of reservoir surface area are designated as critical habitat. There are three bull trout local population in the Lewis River watershed and one in the Klickitat River watershed.

3.1. Lewis River Critical Habitat Subunit

The Lewis River CHSU is essential to bull trout conservation because it has one of the most abundant populations in the lower Columbia region of the RU. A recent Federal Energy Regulatory Commission (FERC) settlement agreement will provide future connectivity to the mainstem Columbia River (see Appendix 1 for more detailed information).

The Lewis River CHSU is located along the southern slopes of Mount Saint Helens. The Lewis River system flows southwest from the Cascade Range, passing through a series of reservoirs (Swift Creek Reservoir, Yale Lake, and Lake Merwin) before flowing into the mainstem Columbia River. Designated critical habitat in the Lewis River CHSU covers approximately 98.0 km (61.0 mi) of stream and 5,050 ha (12,480 ac) of lake surface area. The following water bodies are included in this CHSU (see Table 24):

(A) The lower Lewis River from its confluence with the Columbia River upstream 31.4 km (19.5 mi) to Merwin Dam provides important foraging and overwintering habitat and connectivity to the Columbia River, especially once fish passage at Merwin, Yale, and Swift Dams is fully restored. Restoring connectivity among local population and to the Columbia River is necessary to maintain opportunities for genetic exchange, counter founder effects (extreme genetic drift that occurs when a new population is based on only a few individuals), and provide migratory bull trout access to additional foraging and overwintering habitat.

(B) Merwin Reservoir (1,548.3 ha (3,825.9 ac)), which inundates approximately 23.8 km (14.8 mi) of the Lewis River, provides foraging and overwintering habitat to allow maturation of bull trout trapped below Yale Dam until they can be transported to Cougar Creek as spawners. The reservoir will also serve as a key migration corridor for migratory bull trout moving to and from the Columbia River once fish passage has been restored.

(C) Yale Lake (1,457.5 ha (3,601.6 ac)) which inundates approximately 21.4 km (13.3 mi) of the Lewis River, and Lewis River's Swift bypass reach from Yale Lake upstream 4.3 km (2.7 mi) to the confluence of the Swift No. 1 spillway channel and Upper Release Point channel, provide essential foraging and overwintering habitat to support the Cougar Creek local population and to allow bull trout from the Pine Creek and Rush Creek local population that are trapped below Swift Dam to mature until they can be transported upstream to Swift Creek Reservoir. The

reservoir will also serve as a key migration corridor for migratory bull trout moving to and from the upper and lower reservoirs and the Columbia River once fish passage has been restored. Cougar Creek from its confluence with Yale Lake upstream 3.0 km (1.9 mi) to a lava tube barrier provides the only spawning and rearing habitat for the Cougar Creek local population.

(D) Swift Creek Reservoir (1,850.3 ha (4,572.2 ac)), which inundates approximately 18.5 km (11.5 mi) of the Lewis River, provides essential foraging and overwintering habitat to support the Pine Creek and Rush Creek. The reservoir will also serve as a key migration corridor for migratory bull trout moving to and from the lower reservoirs and the Columbia River once fish passage has been restored. Swift Creek from the end of the Swift Arm segment of the reservoir upstream 0.5 km (0.3 mi) to a barrier falls and Drift Creek from its mouth upstream 2.6 km (1.6 mi) to a natural barrier provide tributary foraging and overwintering habitat in the Swift Creek Reservoir for the two bull trout local population that spawn in Rush and Pine Creeks.

(E) Upper Lewis River from the eastern edge of Swift Creek Reservoir upstream 21.1 km (13.1 mi) to Lower Lewis River Falls provides rearing, foraging, and migration habitat for the Pine Creek and Rush Creek. The Muddy River from its mouth upstream 14.2 km (8.8 mi) to its confluence with Clear Creek provides essential foraging and overwintering habitat to support the Pine Creek and Rush Creek. The Muddy River was severely impacted by the eruption of Mount Saint Helens, which largely eliminated bull trout use of this stream for many years. However, bull trout's renewed use of this stream has recently been documented and is expected to increase as habitat conditions continue to improve.

(F) Pine Creek from its confluence with the Lewis River upstream 11.7 km (7.3 mi) to its headwaters provides spawning and rearing habitat for the Pine Creek local population. It also serves as a key migration corridor between spawning and rearing tributary habitats and downstream FMO habitats in the Lewis River CHSU. The following tributaries from their mouths upstream to natural barriers or headwaters provide spawning and rearing habitat for the Pine Creek local population: unnamed tributary (P7 stream) upstream 1.1 km (0.7 mi); unnamed tributary (P8 stream) upstream 4.8 km (3.0 mi); and unnamed tributary (P10 stream) upstream 1.0 km (0.6 mi).

(G) Rush Creek from its confluence with the Lewis River upstream 2.9 km (1.8 mi) to a barrier falls provides the only spawning and rearing habitat for the Rush Creek local population.

Table 24. Water body segments designated as critical habitat for bull trout, including documentation of occupancy and site-specific rationale in the Lower Columbia River Basins—Lewis River CHU/CHSU

CHU—CHSU	Water Body Name	State	Information Documenting Bull Trout Occupancy	Essential Habitat Rationale	LLID
Lower Columbia River Basins—Lewis River	Rush Creek	WA	Migrating adults use Rush Creek (Faler and Bair 1996, Lesko 2002). Bull trout migrating into Rush Creek included 78 percent, 56 percent, and 60 percent of radio-tagged individuals in 1990, 1991, and 1994 respectively (Faler and Bair 1996).	Rush Creek is essential because it currently provides the most important spawning and rearing habitat for bull trout in the Lower Columbia Management Unit. This habitat is necessary for the long-term persistence of this local population, which is the most likely source for local population refounding.	1219365 460747
Lower Columbia River Basins—Lewis River	Muddy River	WA	Five adult bull trout were observed during snorkel surveys in August 2008 (J. Byrne, pers comm. 2009).	Prior to the 1980 eruption of Mt. St. Helens, bull trout were known to occur in the Muddy River (WDG 1957). This eruption has resulted in long-term impacts to the system's water quality and only recently have bull trout been redetected within the system. The number of bull trout using this system appears to be increasing (J. Byrne, pers comm. 2009). Given its historic and current use, and anadromous salmon recovery efforts within the Lewis River system, the Muddy River likely provides essential FMO habitat for recovery of Lewis River bull trout.	1220053 460695
Lower Columbia River Basins—Lewis River	Pine Creek	WA	Migrating adults have been documented using Pine Creek (Faler and Bair 1996, Lesko 2002). Bull trout migrating into Pine Creek included 11 percent, 31 percent, and 20 percent of radio-tagged individuals in 1990, 1991, and 1994 respectively (Faler and Bair 1996).	Pine Creek is essential as it is one of only two tributaries providing spawning and rearing habitat for Swift Creek Reservoir bull trout. Pine Creek is one of the largest local populations in the Lower Columbia Management Unit. Pine Creek is a major bull trout spawning stream due to larger substrate, cold water, and high water velocity.	1220157 460714
Lower Columbia River Basins—Lewis River	Unnamed trib. ('P7')	WA	WDFW electrofished a juvenile bull trout in this tributary in 2006 (Doyle in litt 2009a,b). Seven juvenile bull trout (94.0-177.8 mm (3.7-7.0 in)) were electrofished in 1989 (R. Lucas, WDFW, pers. comm. 1998). Although specific S/R areas have not been identified, PacifiCorps and Cowlitz County PUD (2000) describe this tributary as having very good salmonid habitat.	This specific tributary to Pine Creek was not identified in the draft recovery plan; however, P7 provides essential spawning and rearing habitat for the Pine Creek local population.	1220580 460924
Lower Columbia River Basins—Lewis River	Unnamed trib. ('P8')	WA	Thirty juvenile bull trout were captured via electrofishing and 20 bull trout redds observed in 2008 (WDFW in litt 2009)	This specific tributary to Pine Creek was not identified in the draft recovery plan; however, P8 provides essential spawning and rearing habitat for the Pine Creek local population.	1220623 461037

CHU—CHSU	Water Body Name	State	Information Documenting Bull Trout Occupancy	Essential Habitat Rationale	LLID
Lower Columbia River Basins—Lewis River	Unnamed trib. ('P10')	WA	Juvenile bull trout were captured just upstream of the mouth of this tributary in 2006 (Cook et al. 2009).	This specific tributary to Pine Creek was not identified in the draft recovery plan; however, P10 provides essential spawning and rearing habitat for the Pine Creek local population.	1220762 461197
Lower Columbia River Basins—Lewis River	Swift Creek	WA	A total of 22 adult-size bull trout were encountered during snorkel and angling surveys conducted between July and September of 2007 (Doyle 2008). A subadult bull trout (182 mm) was recently documented within the system during electrofishing surveys (Doyle in litt. 2009b), which indicates Swift Creek may also provide SR habitat.	Bull trout were only recently (2006) detected in this tributary to Swift Reservoir (Doyle 2008). It has not yet been determined if the bull trout observed in this stream represent a new local population. Although no spawning and rearing habitat has been located yet within Swift Creek, it does provide essential FMO habitat for the Swift Creek Reservoir bull trout.	1221914 460625
Lower Columbia River Basins—Lewis River	Cougar Creek	WA	Part of the current distribution. Adult adfluvial bull trout observed annually returning to Cougar Creek (Service 2002a). Twenty-nine bull trout redds were observed in 2008 (Doyle in litt 2009a,b).	Cougar Creek is occupied and is essential as it is the only tributary providing spawning and rearing habitat for the Cougar Creek local population of bull trout in Yale Lake.	1222887 460502
Lower Columbia River Basins—Lewis River	Lewis River (Lower)	WA	Bull trout are occasionally documented below Merwin Dam. There have been two verified sightings below Merwin Dam and anecdotal reports of bull trout caught in the lower reaches of the Lewis River. An occasional bull trout has been captured in the ladder at the hatchery below the dam; the last known capture was in 1992 (PacifiCorp and Cowlitz County PUD 2001, Service 2002a).	The lower mainstem Lewis River will provide FMO habitat when fish passage at Merwin, Yale, and Swift Dams is restored. Restoring connectivity among local populations and to the Columbia River is necessary to maintain opportunities for genetic exchange, local population refounding, and access to additional FMO habitat (Rieman and McIntyre 1993; Service 2002a). Reestablishing connectivity within the Columbia River basin will require restoration of Lewis River bull trout's access to the Columbia River for foraging, migrating, and overwintering. Providing access to adequate riverine FMO habitats will be necessary to maintain fluvial forms in the Lewis River basin.	1227824 458504.1
Lower Columbia River Basins—Lewis River	Lewis River (Swift bypass)	WA	Part of the current distribution. Bull trout have been routinely observed in the Swift bypass reach on an annual basis since 2004 (WDFW, in litt. 2010).	The Lewis River Swift bypass reach provides additional FMO habitat for bull trout upstream of Yale Dam. This reach may also be important for supporting connectivity between Yale and Swift Reservoirs depending on where future fish passage facilities are located. Reestablishing connectivity within the Columbia River basin will require restoration of Lewis River bull trout's access to the Columbia River for foraging, migrating, and overwintering. Providing access to adequate riverine FMO habitats will be necessary to maintain fluvial forms, and in this case possibly adfluvial forms, in the Lewis River basin.	1227824 458504.2

CHU—CHSU	Water Body Name	State	Information Documenting Bull Trout Occupancy	Essential Habitat Rationale	LLID
Lower Columbia River Basins—Lewis River	Lewis River (Upper)	WA	Part of the current distribution. An adult bull trout was found at the base of the lower falls in Summer 2001 (Frank Shrier, PacifiCorp, pers. comm. 2002, Service 2002a).	Upper Lewis River is essential as it is currently occupied FMO habitat and provides connectivity with spawning and rearing habitat in Pine and Rush Creeks for two of the three local populations in the core area.	1227824 458504.3
Lower Columbia River Basins—Lewis River	Drift Creek	WA	Two subadult bull trout (greater than 250 mm) were captured during electrofishing surveys of a 200 meter reach of Drift Creek in 2009 (J. Byrne, pers comm. 2009).	Drift Creek is believed to provide important tributary FMO habitat for subadult bull trout. Subadult use of non-natal tributaries to Swift Creek Reservoir appears to be limited to only a few streams. Given the number of bull trout recently observed in the short reach that was surveyed, Drift Creek is believed to provide habitat essential for recovery of Swift Creek Reservoir bull trout.	1220767 460500
Lower Columbia River Basins—Lewis River	Lake Merwin	WA	Adult bull trout, apparently attempting to migrate upstream, have been observed in the Yale Dam tailrace. From 1995 to 2008, 65 bull trout have been captured at the Yale Dam tailrace and transported to the mouth of Cougar Creek (Doyle in litt. 2009a,b). Bull trout transported to Cougar Creek from Lake Merwin as spawners probably have contributed significantly to the spawning population, ranging from 7 percent in 2002 to 28 percent in 1995. However, there were no Lake Merwin spawners released into Cougar Creek in 1999 or 2001 (Lesko 2003). In 1999 six bull trout (ranging from 14 to 28 inches (362 to 715 millimeters) were marked and released back into the tailrace (Lesko 2000). No bull trout were captured or seen in the tailrace in 2001 (Lesko 2002). In 2008, 15 bull trout were caught and transported (Doyle in litt. 2009a).	Lake Merwin provides essential FMO habitat to allow bull trout trapped below Yale Dam to mature until they are transported to Cougar Creek as spawners. Lake Merwin would also provide FMO habitat for a local population if one could be established in one of its tributary streams. Currently, there are no known spawning tributaries to Lake Merwin. This reservoir also provides a part of the critical migratory corridor between upstream spawning and rearing areas and FMO habitat within the mainstem Lewis and Columbia Rivers.	1224661 459772
Lower Columbia River Basins—Lewis River	Swift Reservoir	WA	Part of the current distribution. Adult adfluvial bull trout observed annually returning to Rush and Pine Creeks (Service 2002a).	Swift Reservoir is essential as it provides FMO habitat for the adfluvial life history form in the Rush and Pine Creek local populations, two of only three local populations in the Lewis Core Area. This reservoir also provides a part of the critical migratory corridor between these spawning and rearing areas and FMO habitat within the mainstem Lewis and Columbia Rivers.	1221143 460556

CHU—CHSU	Water Body Name	State	Information Documenting Bull Trout Occupancy	Essential Habitat Rationale	LLID
Lower Columbia River Basins—Lewis River	Yale Lake	WA	Part of the current distribution. Adult adfluvial bull trout observed annually returning to Cougar Creek (Service 2002a).	Yale Lake is essential as it provides the only FMO habitat for the Cougar Creek local population. A 3.2-mi (5.2-km) power canal diverts water from the Swift Number 1 tailrace downstream to the Swift Number 2 powerhouse, resulting in the bypass of the old river channel (Swift bypass reach). This reservoir provides a part of the critical migratory corridor between the spawning and rearing areas used by the Rush and Pine Creek local populations and FMO habitat within the mainstem Lewis and Columbia Rivers.	1223121 460121

3.2. Klickitat River Critical Habitat Subunit

The Klickitat River CHSU is essential to bull trout conservation because the headwater resident population represents a possible refugium for the species in the lower Columbia region. Of the three CHSUs in the Lower Columbia River Basins CHU, The Klickitat River CHSU is the only undammed system with access for fluvial bull trout (see Appendix 1 for more detailed information).

The Klickitat River originates from the southeastern slope of Mount Adams and flows south to the Columbia River, below the Dalles Dam (the upper Klickitat River watershed flows largely through Yakama Indian lands). Designated critical habitat in the Klickitat River CHSU covers approximately 135.0 km (83.8 mi) of stream. The West Fork Klickitat River, and its tributaries within the Yakama Indian Reservation, supports the only known bull trout local population in the Klickitat drainage. The following water bodies are included in this CHSU (see Table 25):

(A) Klickitat River from its confluence with the Columbia River upstream 103.3 km (64.2 mi) to Castile Falls provides foraging and overwintering habitat for migratory bull trout, maintaining connectivity with the Columbia River. The West Fork Klickitat River from its confluence with the Klickitat River upstream 0.5 km (0.3 mi) to a waterfall at the junction of Little Muddy Creek and Fish Lake Stream provides foraging and overwintering habitat for bull trout. From the waterfall upstream 8.3 km (5.1 mi) it provides spawning and rearing habitat for the West Fork Klickitat River local population isolated above the falls.

(B) The following tributaries from their mouths upstream to stream confluences or natural barriers provide spawning and rearing habitat for the West Fork Klickitat River local population: Little Muddy Creek upstream 1.9 km (1.2 mi) to its confluence with Crawford Creek; Clearwater Creek upstream 0.3 km (0.2 mi); Trappers Creek upstream 2.7 km (1.7 mi); Fish Lake Stream upstream 10.0 km (6.2 mi) to its confluence with Two Lakes Stream; an unnamed tributary that joins with Fish Lake Stream upstream 6.9 km (4.3 mi); and Two Lakes Stream upstream 1.3 km (0.8 mi).

Table 25. Water body segments designated as critical habitat for bull trout, including documentation of occupancy and site-specific rationale in the Lower Columbia River Basins—Klickitat River CHU/CHSU

CHU—CHSU	Water Body Name	State	Information Documenting Bull Trout Occupancy	Essential Habitat Rationale	LLID
Lower Columbia River Basins—Klickitat River	West Fork Klickitat River	WA	Part of the current distribution (WDFW 2002), both upstream and downstream of falls. Resident form uses habitat upstream of the falls, fluvial form uses habitat below.	West Fork Klickitat River below the falls at RM 0.3 (rkm 0.5) provides essential FMO habitat for bull trout in the mainstem Klickitat River; and essential spawning and rearing habitat for the resident bull trout population located in the West Fork Klickitat River and tributaries above the falls. West Fork Klickitat River and its tributaries are essential for bull trout recovery because this is currently the only known local population in the Klickitat Core Area.	1212458 462416
Lower Columbia River Basins—Klickitat River	West Fork Klickitat River	WA	Part of the current distribution (WDFW 2002), both upstream and downstream of falls. Resident form uses habitat upstream of the falls, fluvial form uses habitat below.	West Fork Klickitat River below the falls at RM 0.3 (rkm 0.5) provides essential FMO habitat for bull trout in the mainstem Klickitat River; and essential spawning and rearing habitat for the resident bull trout population located in the West Fork Klickitat River and tributaries above the falls. West Fork Klickitat River and its tributaries are essential for bull trout recovery because this is currently the only known local population in the Klickitat Core Area.	1212458 462416
Lower Columbia River Basins—Klickitat River	Klickitat River	WA	The historical distribution and current status of bull trout in the Klickitat Core Area are unknown (WDFW 1998). Fluvial, in addition to resident bull trout, may still persist in the system. Bull trout have been reported from the mouth of the Klickitat River and in the mainstem near Leidl Bridge and Castile Falls. Four bull trout (up to approximately 10 inches (in) (254 millimeters (mm))) were observed in the mainstem above the confluence with the West Fork Klickitat River during snorkel and electrofishing surveys in 1990 and 1995 (WDFW 1998). None were found in the mainstem Klickitat River above the west fork confluence during 2001 surveys (Thiesfeld et al. 2001). There are no barriers to prevent bull trout migration from the Columbia River (WDFW 1998). Castile Falls, a series of 11 waterfalls with a total elevational drop of approximately 80 ft (24 m), may be a barrier for upstream migration of bull trout on the mainstem Klickitat.	This section of the mainstem is currently occupied FMO habitat and is essential for maintaining connectivity with the Columbia River. It is unknown at this time if upper reaches may also provide some spawning and rearing habitat for the fluvial life history form.	1212934 456914

CHU—CHSU	Water Body Name	State	Information Documenting Bull Trout Occupancy	Essential Habitat Rationale	LLID
Lower Columbia River Basins—Klickitat River	Fish Lake Stream	WA	There are historical records of bull trout in Fish Lake Stream (Byrne et al. 2000). In the 1960s, bull trout were collected upstream of the confluence with Two Lakes Stream, and in Fish Lake (Steve Thiesfeld, WDFW, pers. comm. 2002). Although no bull trout were detected in Fish Lake Stream in the 2000 or 2001 surveys, bull trout were detected in Two Lakes Stream, which flows into Fish Lake Stream downstream of Fish Lake, and in an unnamed tributary to Fish Lake Stream (Byrne et al. 2000; Thiesfeld et al. 2001). It is likely that bull trout may be found in Fish Lake Stream.	This tributary to West Fork Klickitat River is essential because it is currently occupied by bull trout and provides spawning and rearing habitat for the resident local population in the West Fork Klickitat River complex.	1213118 462751
Lower Columbia River Basins—Klickitat River	Little Muddy Creek	WA	Eleven juvenile and subadult bull trout (eight less than and three greater than 6 in (150 mm) in length were observed above the confluence with Clearwater Creek during night snorkeling in 2000. The average density was 0.4 bull trout/100 square meters. Bull trout were not detected at a sample site near Crawford Creek (Byrne et al. 2000). In 2001, one bull trout (7 in (170 mm) was electrofished above the confluence with Trappers Creek in 2001. Bull trout could be further upstream, as no obvious barriers were observed (Thiesfeld et al. 2001).	This tributary to West Fork Klickitat River is essential because it provides spawning and rearing habitat for the resident local population in the West Fork Klickitat River complex.	1213118 462761
Lower Columbia River Basins—Klickitat River	Clearwater Creek	WA	Bull trout were observed from the confluence to the first falls in 2000 and 2001 surveys. The nearly vertical falls are 19-26 ft (6-8 m) high; no bull trout were found above the falls (Thiesfeld et al. 2001). Ninety-four juvenile and subadult bull trout (45 less than and 49 greater than 6 in (150 mm)) (2.6 bull trout/100 m ² average density) were observed in the 2000 survey (Byrne et al. 2000).	This tributary to Little Muddy Creek is essential because it provides spawning and rearing habitat for the resident local population in the West Fork Klickitat River complex.	1213273 462758
Lower Columbia River Basins—Klickitat River	Trappers Creek	WA	Trappers Creek has historical bull trout records. Nine bull trout were electroshocked and 51 bull trout (45 less than and 49 greater than 6 in (150 mm), with an average density of 6.7 bull trout/328 ft (100 m), were observed during night snorkeling in 2000. In 2001, 28 bull trout were observed below the falls during night snorkeling; none were observed above the falls (Thiesfeld et al. 2001).	This tributary to Little Muddy Creek is essential because it provides spawning and rearing habitat for the resident local population in the West Fork Klickitat River complex.	1213316 462790
Lower Columbia River Basins—Klickitat River	Unnamed trib. - off Fish Lake Stream	WA	Six juvenile and subadult bull trout (111-174 mm) were electrofished at RM 1.5 (rkm 2.4) in 2001 survey (Thiesfeld et al. 2001).	This tributary to Fish Lake Stream is essential because it provides spawning and rearing habitat for the resident local population in the West Fork Klickitat River complex.	1213591 463312

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Chapter 3

CHU—CHSU	Water Body Name	State	Information Documenting Bull Trout Occupancy	Essential Habitat Rationale	LLID
Lower Columbia River Basins—Klickitat River	Two Lakes Stream	WA	Two subadult bull trout (greater than 150 mm) were seen during night snorkeling in the 2001 survey. None were seen above the falls (Thiesfeld et al. 2001).	This tributary to Fish Lake Stream is essential because it provides spawning and rearing habitat for the resident local population in the West Fork Klickitat River complex.	1213694 463427

3.3. White Salmon River Critical Habitat Subunit

The White Salmon River CHSU is of secondary importance relative to existing core areas but provides essential habitat necessary for future recovery efforts (i.e., reintroduction or natural recolonization of the fluvial life history form) once Condit Dam is removed. Existing conditions appear to provide only limited FMO habitat (see Appendix 1 for more detailed information).

The White Salmon River originates from the southwestern slope of Mount Adams and flows south to the Columbia River (Bonneville Pool). On the White Salmon River, the Condit Dam currently forms Northwestern Lake, but the anticipated removal of Condit Dam would result in elimination of the reservoir and restoration of the White Salmon River to its former River channel. The White Salmon River is a historical bull trout locality, but no recent spawning has been observed in this drainage. Although the habitat above Condit Dam is currently considered unoccupied, habitat conducive to spawning and early rearing for bull trout likely exists in the upper White Salmon River and its tributaries above the dam (Silver et al. 2009, pp. 1–3). The White Salmon River is anticipated to be important in future bull trout recovery efforts due to its cold water source, particularly given the anticipated effects of climate change. Although uncertainties exist regarding recolonization or reintroduction within the White Salmon River, this habitat is believed to be essential to successfully reestablish a population within this system. It is anticipated that a population within this river system would contribute to maintaining distribution and increasing abundance of the migratory life history form within the Lower Columbia River Basins CHU of the Coastal Recovery Unit. Designated critical habitat in this CHSU consists of approximately 42.0 km (26.0 mi) of stream. The following water bodies are included in this CHSU (see Table 26):

(A) The White Salmon River will provide an important connectivity corridor to the Columbia River when fish passage at Condit Dam is restored. The historical river channel currently inundated by Northwestern Lake, the 2.4 km (1.5 mi) long reservoir behind Condit Dam, will provide a key piece of the migratory corridor to support the reestablishment of a fluvial population of bull trout in the upper watershed. The removal of Condit Dam will eliminate Northwestern Lake and restore the White Salmon River to its former channel. White Salmon River from the upper edge of Northwestern Lake upstream to Big Brother/Little Brother Falls is also suitable foraging and overwintering habitat and a key piece of the migratory corridor for potential bull trout spawning and rearing tributaries. Critical habitat being designated in this rule includes the White Salmon River from its confluence with the Columbia River upstream approximately 26.1 km (16.2 mi) to Big Brother/Little Brother Falls.

(B) Patch modeling by Silver et al. (2009, pp. 1–3) also identified a number of currently unoccupied tributary systems as areas conducive for bull trout spawning and early rearing. Additional review of potential patches indicated that only a subset of these Creeks would likely maintain persistent year-round water flow (Whitesel, pers. comm. 2009). After taking into account patch size, patch distribution, likely future patch habitat condition based on current landownership patterns, and accessibility to migratory bull trout, the following tributaries from their mouths upstream to natural barriers or headwaters are currently unoccupied but anticipated to provide potential spawning and rearing habitat to establish a local population(s) within the White Salmon River under bull trout recovery: Buck Creek upstream 11.1 km (6.9 mi) and Phelps Creek upstream 4.0 km (2.5 mi).

Table 26. Water body segments designated as critical habitat for bull trout, including documentation of occupancy and site-specific rationale in the Lower Columbia River Basins—White Salmon River CHU/CHSU

CHU—CHSU	Water Body Name	State	Information Documenting Bull Trout Occupancy	Essential Habitat Rationale	LLID
Lower Columbia River Basins—White Salmon River	White Salmon River	WA	The White Salmon River drainage is an historic locality, but the historic distribution of bull trout in the basin is unknown. Sightings of bull trout in the White Salmon River are rare; there have been only two documented occurrences of bull trout in the basin above Condit Dam since 1986 (WDFW 1998). More recent surveys have not documented bull trout in the mainstem White Salmon River or tributaries above Northwestern Lake (WDFW 1998; Byrne et al. 2000; Thiesfeld et al. 2001; Silver et al. 2009). Although no occupied SR habitat has been identified, the White Salmon River contains potential bull trout spawning habitat in the upper reaches above Condit Dam (WDFW 1998; Silver et al. 2009). Thiesfeld et al. (2001) identified at least eight unnamed spring-fed tributaries large enough to support bull trout upstream of Cascade Creek, which enters the White Salmon River above Trout Lake Creek; while recent bull trout patch delineation by Silver et al. (2009), identified at least 11 patches that were conducive for supporting bull trout spawning and early rearing.	White Salmon River above Condit Dam will provide FMO habitat and a key connectivity corridor for potential spawning and rearing tributaries. Currently, Condit Dam forms Northwestern Lake; however, the important habitat for bull trout and other salmonids is restricted to the mainstem (historic channel) of the river. The White Salmon River is anticipated to be important in future recovery efforts, especially under climate change, due to its cold water source. Although there are remaining uncertainties regarding reintroduction/recolonization within this system, it is currently considered essential for recovery as a cold water refugia and connectivity corridor for reestablishing the core area to maintain distribution of the migratory life history form within the lower Columbia River region of the Coastal RU.	1215213 457226.2

CHU—CHSU	Water Body Name	State	Information Documenting Bull Trout Occupancy	Essential Habitat Rationale	LLID
Lower Columbia River Basins—White Salmon River	White Salmon River	WA	The White Salmon River drainage is an historic locality, but the historic distribution of bull trout in the basin is unknown. Sightings of bull trout in the White Salmon River are rare; there have been only two documented occurrences of bull trout in the basin above Condit Dam since 1986 (WDFW 1998). More recent surveys have not documented bull trout in the mainstem White Salmon River or tributaries above Northwestern Lake (WDFW 1998; Byrne et al. 2000; Thiesfeld et al. 2001; Silver et al. 2009). Although no occupied SR habitat has been identified, the White Salmon River contains potential bull trout spawning habitat in the upper reaches above Condit Dam (WDFW 1998; Silver et al. 2009). Thiesfeld et al. (2001) identified at least eight unnamed spring-fed tributaries large enough to support bull trout upstream of Cascade Creek, which enters the White Salmon River above Trout Lake Creek; while recent bull trout patch delineation by Silver et al. (2009), identified at least 11 patches that were conducive for supporting bull trout spawning and early rearing.	White Salmon River above Condit Dam will provide FMO habitat and a key connectivity corridor for potential spawning and rearing tributaries. The White Salmon River is also anticipated to provide spawning and rearing habitat above the confluence with Cascade Creek for a population that is either reintroduced or naturally becomes reestablished. Currently, Condit Dam forms Northwestern Lake; however, the important habitat for bull trout and other salmonids is restricted to the mainstem (historic channel) of the river. The White Salmon River is anticipated to be important in future recovery efforts, especially under climate change, due to its cold water source. Although there are remaining uncertainties regarding reintroduction/recolonization within this system, it is currently considered essential for recovery as a cold water refugia and connectivity corridor for reestablishing the core area to maintain distribution of the migratory life history form within the lower Columbia River region of the Coastal RU.	1215213 457226.1
Lower Columbia River Basins—White Salmon River	White Salmon River	WA	The White Salmon River drainage is an historic locality, but the historic distribution of bull trout in the basin is unknown. Sightings of bull trout in the White Salmon River are rare; there have been only two documented occurrences of bull trout in the basin above Condit Dam since 1986 (WDFW 1998). More recent surveys have not documented bull trout in the mainstem White Salmon River or tributaries above Northwestern Lake (WDFW 1998; Byrne et al. 2000; Thiesfeld et al. 2001; Silver et al. 2009). Although no occupied SR habitat has been identified, the White Salmon River contains potential bull trout spawning habitat in the upper reaches above Condit Dam (WDFW 1998; Silver et al. 2009). Thiesfeld et al. (2001) identified at least eight unnamed spring-fed tributaries large enough to support bull trout upstream of Cascade Creek, which enters the White Salmon River above Trout Lake Creek; while recent bull trout patch delineation by Silver et al. (2009), identified at least 11 patches that were conducive for supporting bull trout spawning and early rearing.	White Salmon River above Condit Dam will provide FMO habitat and a key connectivity corridor for potential spawning and rearing tributaries. Currently, Condit Dam forms Northwestern Lake; however, the important habitat for bull trout and other salmonids is restricted to the mainstem (historic channel) of the river. The White Salmon River is anticipated to be important in future recovery efforts, especially under climate change, due to its cold water source. Although there are remaining uncertainties regarding reintroduction/recolonization within this system, it is currently considered essential for recovery as a cold water refugia and connectivity corridor for reestablishing the core area to maintain distribution of the migratory life history form within the lower Columbia River region of the Coastal RU.	1215213 457226.2

Bull Trout Final Critical Habitat Justification

U. S. Fish and Wildlife Service

September 2010

Chapter 3

CHU—CHSU	Water Body Name	State	Information Documenting Bull Trout Occupancy	Essential Habitat Rationale	LLID
Lower Columbia River Basins—White Salmon River	Buck Creek	WA	Patch modeling by Silver et al. (2009) identified this creek system as one of the areas conducive for bull trout spawning and early rearing. Additional review of potential patches, indicated that Buck Creek would likely maintain persistent year-round water flows (Whitesel, pers. comm. 2009).	This tributary to White Salmon River is essential because it is anticipated to provide spawning and rearing habitat for a potential local population within the White Salmon River core habitat. Buck Creek will likely be essential for reestablishing the core area to maintain distribution of the migratory life history form within the lower Columbia River region of the Coastal RU.	1215137 457810
Lower Columbia River Basins—White Salmon River	Phelps Creek	WA	Patch modeling by Silver et al. (2009) identified this creek system as one of the areas conducive for bull trout spawning and early rearing. Additional review of potential patches indicated that Phelps Creek would likely maintain persistent year-round water flows (Whitesel, pers. comm. 2009).	This tributary to White Salmon River is essential because it is anticipated to provide spawning and rearing habitat for a potential local population within the White Salmon River core habitat. Phelps Creek will likely be essential for reestablishing the core area to maintain distribution of the migratory life history form within the lower Columbia River region of the Coastal RU.	1215170 458815